



South Coast
AQMD

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

ANNUAL AIR QUALITY MONITORING NETWORK PLAN

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INTRODUCTION

An annual review of the Air Quality Monitoring Network is required by Federal Regulations as a means to identify and report needs for additions, relocations, or terminations of monitoring sites or instrumentation. This report describes the network of ambient air quality monitors in the jurisdiction of and operated by the South Coast Air Quality Management District (South Coast AQMD). It includes a review of actions taken during the 2019-2020 fiscal year and plans for action in the year ahead. This plan addresses the requirement for an annual network plan as listed in Title 40, Part 58, Section 10 of the Code of Federal Regulations (40 CFR § 58.10). Regulations require the report be submitted to the U.S. Environmental Protection Agency (U.S. EPA) by July 1 of each year after a 30 day public comment period. All monitors meet the requirement of appendices A, B, C, D and E as required in 40 CFR § 58.10 (a)(1) where applicable.

The South Coast AQMD staff, along with the California Air Resources Board (CARB), conducted an extensive review of the air monitoring sites in the South Coast Air Basin (Basin) in late 1980. During the review, State and Local Air Monitoring Stations (SLAMS) designations, site type and spatial scales of representativeness were assigned to the criteria pollutants monitored at each site. Since that time, U.S. EPA Region IX and CARB staff visited selected sites to confirm compliance with applicable siting criteria and related requirements. The most recent site visits occurring in June 2020 to conduct a comprehensive Technical System Audit (TSA) of the ambient air monitoring network. Each year, South Coast AQMD staff conducts an annual review of its air monitoring network and submits it to U.S. EPA. The review process focuses on current and future air monitoring network strategies and network changes are made in consultation with U.S. EPA and CARB. When re-location of monitoring sites are required, site reports are updated in U.S. EPA's Air Quality System (AQS) to document compliance with established siting criteria for the new locations.

Public Comments

Pursuant to Federal regulations, a draft plan was made available for public inspection electronically at (<http://www.aqmd.gov/home/air-quality/clean-air-plans/monitoring-network-plan>) from May 14 through June 15, 2020 for a comment period of 30 days. Hard copies of the final document were available July 1, 2020 at the South Coast AQMD's Public Information Desk in Diamond Bar, CA. The final document is available on the South Coast AQMD website beginning July 1, 2020 in the drop down menu under Air Quality - Clean Air Plans - Air Monitoring Network Plan or (<http://www.aqmd.gov/home/air-quality/clean-air-plans/monitoring-network-plan>). The document was made available to U.S. EPA July 1, 2020 and a hardcopy provided upon request.

Network Design

The South Coast AQMD operates 39 permanent air monitoring stations (AMS) and 4 single-pollutant source impact Lead (Pb) air monitoring sites in the Basin and a portion of the Salton Sea Air Basin in Coachella Valley. This area includes Orange County and the non-desert portions of Los Angeles, Riverside and San Bernardino Counties. The most recent sites added were part of the area wide monitoring network at Signal Hill and North Hollywood replacing the previously closed Long Beach (North) and Burbank AMS. The newest source impact Pb sites

were added in January 2010 as required by U.S. EPA regulation. Table 1 provides a list of monitoring locations, U.S. EPA AQS site codes and the pollutants measured at each site. Table 2 provides the spatial scale and the site type for each monitor at all sites. Table 3 describes the monitoring purpose for the monitors at each site. Table 4 describes the site type, spatial scale and monitoring purpose for continuous particulate analyzers at each site. A requirement of the annual network plan, the *monitoring purpose* is the reason why a certain pollutant is being measured at a certain site.

A list and description of monitoring purposes are provided below and portions are adapted from the CARB annual network plan for 2007.

Background Level monitoring is used to determine general background levels of air pollutants as they enter the Basin.

High Concentration monitoring is conducted at sites to determine the highest concentration of an air pollutant in an area within the monitoring network. A monitoring network may have multiple high concentration sites (i.e., due to varying meteorology year to year).

Pollutant Transport is the movement of pollutants between air basins or areas within an air basin. Transport monitoring is used to assess and mitigate upwind areas when transported pollutant affects neighboring downwind areas. Also, transport monitoring is used to determine the extent of regional pollutant transport among populated areas and to rural areas.

Population Exposure monitoring is conducted to represent the air pollutant concentrations that a populated area is exposed to.

Representative Concentration monitoring is conducted to represent the air quality concentrations for a pollutant expected to be similar throughout a geographical area. These sites do not necessarily indicate the highest concentrations in the area for a particular pollutant.

Source Impact monitoring is used to determine the impact of significant sources or source categories of air quality emissions on ambient air quality. The air pollutant sources may be stationary or mobile.

Trend Analysis monitoring is useful for comparing and analyzing air pollution concentrations over time. Usually, trend analyses can be used to assess the progress in improving air quality for an area over a period of many years.

Site Comparison monitoring is used to assess the effect on measured pollutant levels of moving a monitoring location a short distance (usually less than two miles). Some monitoring stations become no longer usable due to development, change of lease terms, or eviction. In these cases, attempts are made to conduct concurrent monitoring at the old and new site for a period of at least one year in order to compare pollutant concentrations.

Real Time Reporting/Modeling is used to provide data to U.S. EPA's AIRNOW system which reports conditions for air pollutants on a real time basis to the general public. Data is also used to provide accurate and timely air quality forecast guidance to residents of the Basin.

Multiple purposes for measuring a pollutant at a site are possible. There is some overlap between site type and monitoring purposes as defined by U.S. EPA and given in Tables 2, 3 and 4.

TABLE 1. List of Monitoring Sites

	Location	AQS No.	Criteria Pollutants Monitored	Start Date
1	Anaheim	060590007	CO, NO2, O3, PM10, PM2.5	08/01
2	Anaheim Route 5 Near Road	060590008	CO, NO2	01/14
3	ATSF (Exide)	060371406	Pb	01/99
4	Azusa	060370002	CO, NO2, O3, PM10, PM2.5	01/57
5	Banning Airport	060650012	NO2, O3, PM10, PM2.5	04/97
6	Big Bear	060718001	PM2.5	02/99
7	Central San Bernardino Mountains	060710005	O3, PM10, PM2.5	10/73
8	Closet World (Quemetco)	060371404	Pb	10/08
9	Compton	060371302	CO, NO2, O3, Pb, PM2.5	01/04
10	Fontana	060712002	CO, NO2, SO2, O3, PM10, PM2.5	08/81
11	Glendora	060370016	CO, NO2, O3, PM10, PM2.5	08/80
12	Indio	060652002	O3, PM10, PM2.5	01/83
13	La Habra	060595001	CO, NO2, O3	08/60
14	Lake Elsinore	060659001	CO, NO2, O3, PM10, PM2.5	06/87
15	LAX Hastings	060375005	CO, NO2, O3, PM10, Pb	04/04
16	Long Beach (Hudson) ¹	060374006	CO, NO2, SO2, O3, PM10	01/10
17	Long Beach (North)	060374002	PM2.5	10/62
18	Long Beach Route 710 Near Road	060374008	NO2, PM2.5	01/15
19	Long Beach (South)	060374004	PM10, Pb, PM2.5	06/03
20	Los Angeles (Main St.)	060371103	CO, NO2, SO2, O3, PM10, Pb, PM2.5	09/79
21	Mecca (Saul Martinez)	060652005	PM10	01/11
22	Mira Loma (Van Buren)	060658005	CO, NO2, O3, PM10, PM2.5	11/05
23	Mission Viejo	060592022	CO, O3, PM10, PM2.5	06/99
24	Norco	060650003	PM10	12/80
25	North Hollywood	060374010	NO2, O3, PM2.5	01/2020
26	Ontario Etiwanda Near Road	060710026	CO, NO2	06/14
27	Ontario Route 60 Near Road	060710027	NO2, PM2.5	01/15
28	Palm Springs	060655001	CO, NO2, O3, PM10, PM2.5	04/71
29	Pasadena	060372005	CO, NO2, O3, PM2.5	04/82
30	Perris	060656001	O3, PM10	05/73
31	Pico Rivera #2	060371602	CO, NO2, O3, PM10, Pb, PM2.5	09/05
32	Pomona	060371701	CO, NO2, O3	06/65
33	Redlands	060714003	O3, PM10	09/86
34	Rehrig (Exide)	060371405	Pb	11/07
35	Reseda	060371201	CO, NO2, O3, PM2.5	03/65
36	Rubidoux	060658001	CO, NO2, SO2, O3, PM10, Pb, PM2.5	09/72
37	San Bernardino	060719004	CO, NO2, O3, PM10, Pb, PM2.5	05/86
38	Santa Clarita	060376012	CO, NO2, O3, PM10, PM2.5	05/01
39	Signal Hill	060374009	NO2, O3,	01/2020
40	Temecula	060650016	O3, PM2.5	06/10
41	Uddeholm (Trojan Battery)	060371403	Pb	11/92
42	Upland	060711004	CO, NO2, O3, PM10, PM2.5	03/73
43	West Los Angeles	060370113	CO, NO2, O3	05/84

¹ Site discontinued December 31, 2019

TABLE 2. FRM Criteria Pollutant Spatial Scales and Site Type

<u>SPATIAL SCALE</u>		<u>SITE TYPE</u>						
MI – Microscale		HC – Highest Concentration						
MS – Middle Scale		PE – Population Exposure						
NS – Neighborhood Scale		IM – Source Oriented (Impact)						
US – Urban Scale		BK – General Background						
	Location	CO	NO2	SO2	O3	Manual PM10	Manual PM2.5	Pb
1	Anaheim	NS/PE	US/PE		NS/PE	NS/HC	NS/PE	
2	Anaheim Route 5 Near Road	MI/HC	MI/HC					
3	ATSF (Exide)							MI/IM
4	Azusa	NS/PE	US/PE		US/HC	NS/PE	NS/PE	
5	Banning Airport		NS/PE		NS/PE	NS/PE		
6	Big Bear						NS/PE	
7	Central San Bernardino Mountains				NS/HC	NS/PE		
8	Closet World (Quemetco)							MI/IM
9	Compton	MS/HC	MS/PE		NS/PE		NS/HC	NS/PE
10	Fontana	NS/PE	US/PE	NS/PE	US/PE	NS/HC/PE	NS/PE	
11	Glendora	NS/PE	NS/PE		NS/HC			
12	Indio				NS/PE	NS/HC	NS/PE	
13	La Habra	NS/PE	US/PE		NS/PE			
14	Lake Elsinore	NS/PE	NS/PE		NS/PE			
15	LAX Hastings	MS/PE/BK	MS/PE/BK	NS/PE/BK	NS/PE/BK	NS/PE/BK		NS/PE/BK
16	Long Beach (Hudson) ¹	NS/HC	NS/PE	NS/HC	NS/PE	NS/PE		
17	Long Beach (North)						NS/PE	
18	Long Beach Route 710 Near Road		MI/HC				MI/HC	
19	Long Beach (South)					NS/PE	NS/PE	NS/PE
20	Los Angeles (Main St.)	NS/PE	NS/HC	NS/PE	NS/PE	NS/PE	NS/PE	NS/PE
21	Mecca (Saul Martinez)					NS/HC/PE		
22	Mira Loma (Van Buren)	NS/PE	NS/PE		NS/PE	NS/HC	NS/HC	
23	Mission Viejo	NS/PE			NS/PE	NS/PE	NS/PE	
24	Norco					NS/PE		
25	North Hollywood		NS/PE		US/HC			
26	Ontario Etiwanda Near Road	MI/HC	MI/HC					
27	Ontario Route 60 Near Road		MI/HC				MI/HC	
28	Palm Springs	NS/PE	NS/PE		NS/PE	NS/PE	NS/PE	
29	Pasadena	MS/PE	MS/HC		NS/PE		NS/PE	
30	Perris				NS/PE	NS/PE		
31	Pico Rivera #2	NS/PE	NS/HC		NS/PE		NS/PE	NS/PE
32	Pomona	MI/PE	MS/PE		MS/PE			
33	Redlands				NS/PE/HC	NS/PE		
34	Rehrig (Exide)							MI/IM
35	Reseda	NS/PE	US/PE		US/PE		NS/PE	
36	Rubidoux	NS/PE	US/PE	NS/PE	USPE	NS/HC	NS/HC	NS/PE
37	San Bernardino	MS/PE	US/PE		NS/HC	NS/PE	NS/PE	NS/PE
38	Santa Clarita	NS/PE	NS/PE		US/HC	NS/PE		
39	Signal Hill		MS/PE		NS/PE			
40	Temecula				NS/HC			
41	Uddeholm (Trojan Battery)							MI/IM
42	Upland	NS/PE	NS/PE		NS/PE			
43	West Los Angeles	NS/PE	MS/HC		NS/PE			

¹ Site discontinued December 31, 2019

TABLE 3. FRM Criteria Pollutant Monitoring Purposes
MONITORING PURPOSE

BK – Background

HC – High Concentration

TP – Pollutant Transport

EX – Population Exposure

SO – Source Impact

RC – Representative Concentration

RM – Real-Time Reporting/Modeling

TR – Trend Analysis

CP – Site Comparisons

CO – Collocated

	Location	CO	NO2	SO2	O3	Manual PM10	Manual PM2.5	Pb
1	Anaheim	TR	TR/RC		TR	HC/TR	TR/EX	
2	Anaheim Route 5 Near Road	SO/HC	SO/HC					
3	ATSF (Exide)							SO
4	Azusa	TR	TR/RC		TR	TR	TR/EX	
5	Banning Airport		TP/RC		TP	TP		
6	Big Bear						EX/SO/TP	
7	Central San Bernardino Mountains				HC	TP/RC		
8	Closet World (Quemetco)							SO
9	Compton	TR/HC	TR/RC		TR/RC		EX/HC/RC	EX
10	Fontana	RC	TP/RC	TR	RC	HC/RC	EX/TP	
11	Glendora	RC	TR/RC		HC			
12	Indio				TP	HC/CO	TP/EX	
13	La Habra	RC	TR/RC		RC			
14	Lake Elsinore	TP/RC	TP/RC		TP/RC			
15	LAX Hastings	BK	BK	BK	BK			BK
16	Long Beach (Hudson) ¹	TR	TR/RC	TR/HC	TR	TR/RC		
17	Long Beach (North)						EX	
18	Long Beach Route 710 Near Road		SO/HC				SO/HC	
19	Long Beach (South)					RC	EX	EX
20	Los Angeles (Main St.)	SO/RC	SO/HC	TR	TR/RC	TR/RC/CO	EX/HC/CO	EX/CO
21	Mecca (Saul Martinez)					HC/EX/RC		
22	Mira Loma (Van Buren)	TR/RC	TR/RC		TR/HC	HC	EX/HC/CO	
23	Mission Viejo	RC			TR/RC	TR/RC	EX/RC	
24	Norco					TR/RC		
25	North Hollywood		TR/RC		TR			
26	Ontario Etiwanda Near Road	SO/HC	SO/HC					
27	Ontario Route 60 Near Road		SO/HC				SO/HC	
28	Palm Springs	TP/RC	TP/RC		TP	TP	EX/TP	
29	Pasadena	TR/RC	TR/HC		TR/RC		EX/RC	
30	Perris				TP	TR		
31	Pico Rivera #2	RC	HC		EX		EX/RC	EX
32	Pomona	RC	RC		EX			
33	Redlands				TP/RC	TP/RC		
34	Rehrig (Exide)							SO/CO
35	Reseda	RC	TR/RC		EX		EX/RC	
36	Rubidoux	TR/RC	TR/RC	TR	TR/HC	HC/TR/CO	HC/EX/TR/CO	EX
37	San Bernardino	TR/RC	TP/RC		TR/HC	TR	EX/TR	EX
38	Santa Clarita	RC	TP/RC		TP/RC	RC	EX/RC	
39	Signal Hill		TR/RC		TR			
40	Temecula				TR/HC			
41	Uddeholm (Trojan Battery)							MI/IM
42	Upland	RC	TR/RC		TR/RC			
43	West Los Angeles	RC	TR/HC		RC			

¹ Site discontinued December 31, 2019

TABLE 4. Continuous PM₁₀/PM_{2.5} Monitoring Purpose, Site Type and Spatial Scales
SITE TYPE

HC – High Concentration
PE – Population Exposure
BK - Background

SPATIAL SCALE

MI – Microscale
NS – Neighborhood Scale

INSTRUMENT TYPE

TEOM
BAM (NON-FEM)
BAM (FEM)

MONITORING PURPOSE

CO – Collocated
SO – Source Impact
TP – Pollutant Transport
RM – Real-Time Reporting/Modeling
SPM Special Purpose Monitoring
TR – Trend Analysis

Location	Continuous PM ₁₀				Continuous PM _{2.5}				PM ₁₀ – 2.5
	Type	Purpose	Site Type	Scale	Type	Purpose	Site Type	Scale	Operational
Anaheim	BAM/FEM	TR/RM	HC	NS	BAM/FEM	TR/RM	PE	NS	
Banning Airport					BAM/NON-FEM	TP/RM	PE	NS	
Central San Bernardino Mountains					BAM/NON-FEM	TP/RM	PE	NS	
Glendora	BAM/FEM	TR/RM	PE	NS	BAM/NON-FEM	TR/RM	PE	NS	
Indio	TEOM/FEM	RM	HC	NS					
Lake Elsinore	TEOM/FEM	TP/RM	PE	NS	BAM/NON-FEM	TP/RM	PE	NS	
Long Beach Route 710 Near Road					BAM/FEM	SO/RM	HC	MI	
Long Beach (South)					BAM/FEM	RM	PE	NS	
Los Angeles (Main St.)	BAM/FEM	TR/RM	PE	NS	BAM/FEM	TR/RM	HC	NS	Yes
Mecca (Saul Martinez)	TEOM/FEM	RM	HC	NS					
Mira Loma (Van Buren)	BAM/FEM	TR/RM	HC	NS	BAM/FEM	TR/RM	HC	NS	
North Hollywood					BAM/NON-FEM ¹	TR/RM	HC	NS	
Ontario Route 60 Near Road					BAM/FEM	SO/RM	HC	MI	
Palm Springs	TEOM/FEM	TR/RM	PE	NS					
Reseda					BAM/NON-FEM	RM	PE	NS	
Rubidoux	BAM/FEM	TR/RM	HC	NS	BAM/FEM	RM/TR/CO	HC	NS	Yes
San Bernardino	TEOM/FEM	TR/RM	PE	NS					
Santa Clarita					BAM/NON-FEM	TP/RM	PE	NS	
Signal Hill									
Temecula					BAM/NON-FEM	TP/RM	PE	NS	
Upland	BAM/FEM	RM	PE	NS	BAM/NON-FEM	RM	PE	NS	

¹ Site began operation January 1, 2020 as SPM.

A brief description of the criteria pollutant and program monitoring networks are provided below:

OZONE (O3)

The South Coast AQMD operates 29 sites where O3 measurements are made as part of the Air Monitoring Network. O3 sites are spread throughout the Basin with highest concentrations measured inland. Figure 1 in Appendix A shows the spatial distribution of these sites and Table 12 shows the minimum monitoring requirements.

PM10

Size-selective inlet manual high volume samplers are operated at 19 sites to meet the requirements for PM10 Federal Reference Method (FRM) sampling. The PM10 monitoring network contains two sites within 20% of the Federal National Ambient Air Quality Standard (NAAQS) as shown in the 2019 Air Quality Data Table (<http://www.aqmd.gov/home/air-quality/air-quality-data-studies/historical-data-by-year>) Figure 9. The South Coast AQMD PM10 monitoring network exceeds the minimum number of monitors required as shown in Table 16 and Figure 2.

PM10 sampling frequency requirements specify a 24-hour sample must be taken from midnight to midnight (local standard time) to ensure national consistency. The minimum monitoring schedule for the site in the area of expected maximum concentration (24-hour Design Concentration) shall be based on the relative level of that monitoring site concentration with respect to the 24-hour standard.

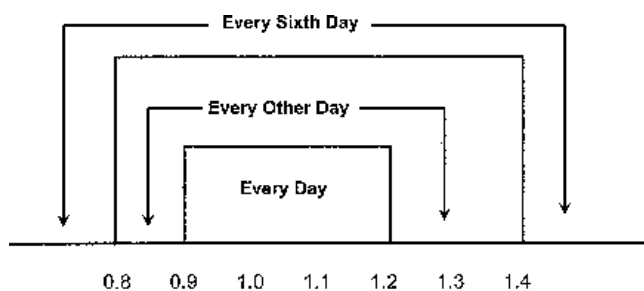


Figure 1 – Ratio to Standard

Evaluation of daily values show all PM10 FRM monitors operate on schedule of one sample every six days (1-in-6) with the exception of Anaheim. The sampling frequency requirement for Anaheim is met by utilizing a continuous FEM PM10 monitor. South Coast AQMD operates Indio, Mira Loma (Van Buren) and Rubidoux on a schedule of one sample every three days (1-in-3) as shown in Tables 5 and 6.

Quality control for Manual PM10 requires 15 percent of the primary monitors be collocated. Fifty percent of the collocated quality control monitors should be deployed at sites with daily concentrations estimated to be within plus or minus 20 percent of the applicable NAAQS and the remainder at the discretion of the Primary Quality Assurance Organization (PQAO). Guidance recommends, “if an organization has no sites with daily concentrations within plus or minus 20 percent of the NAAQS, 50 percent of the collocated quality control monitors should be deployed at those sites with the daily mean concentrations among the highest for

all sites in the network and the remainder at the PQAOs discretion”. The Indio, Mira Loma (Van Buren) and Rubidoux sites meet this requirement and are designated PM10 collocated and shown in Tables 5, 6 and 24.

PM10 continuous analyzers are operated at 11 sampling sites. These real-time devices are capable of making hourly particulate concentration measurements for real-time reporting. Table 4 describes the monitor type, site type, monitoring purpose and spatial scale for continuous particulate analyzers. Figure 2 in Appendix A shows the spatial distribution of the sampling sites. For the most part, real monitors are clustered in high concentration areas, with three located in the Coachella Valley desert area where wind-blown crustal material has caused exceedances of the 24-hour standard during exceptional events. In downwind areas of the Basin, a large fraction of particulate is formed in the atmosphere; PM10 typically reaches maximum levels in the Basin during late summer through early winter months.

Where both 24-hour FRM PM10 samplers and FEM PM10 continuous analyzers are deployed together, they are sited as collocated for data comparison purposes. The FRM PM10 sampler remains the primary analyzer used for attainment purposes and continuous analyzers are designated as audit samplers unless the primary 24-hour FRM PM10 is offline then continuous FEM analyzer data can be substituted.

TABLE 5. Manual PM₁₀ FRM Monitoring Stations Assigned Site Numbers

	Location	Site Code	ARB No.	AQS No.	Start Date	Schedule
1	Anaheim	ANAH	30178	060590007	01/03/99	1-in-6
2	Azusa	AZUS	70060	060370002	01/04/99	1-in-6
3	Banning	BNAP	33164	060650012	04/01/97	1-in-6
4	Central San Bernardino Mountains	CRES	36181	060710005	10/01/73	1-in-6
5	Fontana	FONT	36197	060712002	01/03/99	1-in-6
6A	Indio “A” & “B” ¹ Composite	INDI	33157	060652002	01/30/99	1-in-3
6C	Indio “C” ⁴	INDI	33157	060652002	01/30/99	1-in-6
7	LAX (Hastings)	LAXH	70111	060375005	04/01/04	1-in-6
8	Long Beach (Hudson) ²	HDSN	70033	060374006	01/01/10	1-in-6
9	Long Beach (South)	SLGB	70110	060374004	06/01/03	1-in-6
10	Mecca (Saul Martinez)	SLMZ	33033	060652005	01/01/11	1-in-6
11A	Los Angeles (Main St.) “A”	CELA	70087	060371103	01/03/99	1-in-6
11B	Los Angeles (Main St.) “B” ³	CELA	70087	060371103	01/03/99	1-in-6
12A	Mira Loma (Van Buren) “A” & “B” Composite	MLVB	33165	060658005	11/09/05	1-in-3
12C	Mira Loma (Van Buren) “C” ⁴	MLVB	33165	060658005	03/08/12	1-in-6
13	Mission Viejo	MSVJ	30002	060592022	06/01/99	1-in-6
14	Norco	NORC	33155	060650003	12/01/80	1-in-6
15	Palm Springs	PLSP	33137	060655001	12/26/99	1-in-6
16	Perris	PERI	33149	060656001	05/01/73	1-in-6
17	Redlands	RDLD	36204	060714003	09/01/86	1-in-6
18A	Rubidoux “A”	RIVR	33144	060658001	01/03/99	1-in-3
18B	Rubidoux “B” ⁴	RIVR	33144	060658001	01/03/99	1-in-6
19	San Bernardino	SNBO	36203	060719004	01/03/99	1-in-6
20	Santa Clarita	SCLR	70090	060376012	05/01/01	1-in-6

¹ Run on 1-in-3 run day as composite sampler² Site discontinued December 31, 2019³ Run as collocated NATTS.⁴ Run as collocated on 1-in-6 run day.

TABLE 6. PM10 Monitor Sampling Frequency Requirement

	Location	AQS No.	Design Conc. In ug/m ³ 24-hour ¹	Required Sampling Frequency	Sampling Frequency	Primary Method
1	Anaheim ²	060590007	123	1-in-2	1-in-1	FRM
2	Azusa	060370002	67	1-in-6	1-in-6	FRM
3	Banning	060650012	41	1-in-6	1-in-6	FRM
4	Central San Bernardino Mountains	060710005	47	1-in-6	1-in-6	FRM
5	Fontana	060712002	75	1-in-6	1-in-6	FRM
6	Glendora ³	060370016	90	1-in-6	1-in-1	FEM
7	Indio	060652002	149	1-in-6	1-in-3	FRM
8	Lake Elsinore ³	060659001	82	1-in-6	1-in-1	FEM
9	LAX (Hastings)	060375005	46	1-in-6	1-in-6	FRM
10	Long Beach (Hudson) ⁴	060374006	74	1-in-6	1-in-6	FRM
11	Long Beach (South)	060374004	55	1-in-6	1-in-6	FRM
12	Mecca (Saul Martinez)	060652005	264	1-in-6	1-in-6	FRM
13	Los Angeles (Main St.)	060371103	62	1-in-6	1-in-6	FRM
14	Mira Loma (Van Buren)	060658005	229	1-in-6	1-in-3	FRM
15	Mission Viejo	060592022	45	1-in-6	1-in-6	FRM
16	Norco	060650003	85	1-in-6	1-in-6	FRM
17	Palm Springs	060655001	105	1-in-6	1-in-6	FRM
18	Perris	060656001	70	1-in-6	1-in-6	FRM
19	Redlands	060714003	53	1-in-6	1-in-6	FRM
20	Rubidoux	060658001	92	1-in-6	1-in-3	FRM
21	San Bernardino	060719004	101	1-in-6	1-in-6	FRM
22	Santa Clarita	060376012	49	1-in-6	1-in-6	FRM
23	Upland ³	060711004	93	1-in-6	1-in-1	FEM

¹ Design concentration is the combined 4th highest measurement of all monitors (FRM/FEM) over the most recent three-year period of time.

² Increased sampling requirement met through continuous monitor as shown in Table 4.

³ FEM monitor only.

⁴ Site discontinued December 31, 2019

Note: Sampling frequency requirement per 58.12 (e) “use of the most recent 3 years of data might, in some cases, be justified in order to provide a more representative database.”

PM10-2.5

PM10-2.5 (PM Coarse) was previously required at National Core (NCore) sites until the revision to 40 CFR Part 58 on March 28, 2016. PM Coarse is derived from the continuous BAM PM10 and PM2.5 particulate monitors. South Coast AQMD continues to measure this optional parameter utilizing the continuous BAM monitors at the Los Angeles (Main St.) and Rubidoux air monitoring sites as shown in Table 4. The Purpose, Site Type and Scale are similar to the continuous PM10 and PM2.5 instruments from which data is calculated.

NITROGEN DIOXIDE (NO2)

The NO2 network consists of 23 area wide and 4 near road sites. These sites are located in areas of highest expected NO2 concentrations.

The Near Road monitoring network consists of four sites which were implemented in January of 2014 and 2015. These sites were selected based upon criteria established in U.S.

EPA Near Road Technical Assistance Document and approved by U.S. EPA. The implementation plan was presented publicly at a Near Road Workshop to solicit input. Near Road sites are adjacent to the most heavily traveled roadways identified in the basin where peak hourly NO₂ concentrations occur within the near-road environment. Site selection took into consideration satisfying siting criteria, site logistics (e.g., gaining access to property and safety) and population exposure for those who live, work, play, go to school, or commute within the near-roadway environment. The spatial distribution of NO₂ monitors is shown in Figure 3 in Appendix A and minimum monitoring requirements are shown in Table 17.

Additionally, the Regional Administrator (RA) identified 40 NO₂ sites nationwide with a primary focus on siting these monitors in locations to protect susceptible and vulnerable populations. The RA in collaboration with South Coast AQMD identified the Los Angeles (Main St.) and San Bernardino sites from the existing area-wide monitoring network to meet this requirement (58.10 [a][5]). On September 30, 2013, Compton was also designated as a RA 40 site. Review of 1992 through 2019 NO₂ data shows the State and Federal standards for NO₂ were not violated.

CARBON MONOXIDE (CO)

Area wide CO monitors measure concentrations at 21 ambient locations and 2 near road locations within the South Coast AQMD ambient air monitoring network. Figure 4 in Appendix A shows the spatial distribution of these sites. CO emissions, primarily from motor vehicles, show a pattern consistent with major freeway arteries. A review of data for 2019 shows State and Federal standards for CO were not exceeded.

SULFUR DIOXIDE (SO₂)

SO₂ monitors are located at 4 sites. Figure 5 in Appendix A shows the spatial distribution of the sites. Most SO₂ emissions result from federally regulated transportation sources such as marine vessels. The monitors are clustered largely in the areas where sources are located.

On June 22, 2010, U.S. EPA strengthened the SO₂ NAAQS. Network design requirements included new minimum requirements be determined by the Population Weighted Emissions Index (PWEI).

The PWEI shall be calculated by States for each Core Based Statistical Area (CBSA) they contain or share with another State or States for use in the implementation of or adjustment to the SO₂ monitoring network. The PWEI shall be calculated by multiplying the population of each CBSA, using the most current census data or estimates and the total amount of SO₂ in tons per year emitted within the CBSA area, using an aggregate of the most recent county level emissions data available in the National Emissions Inventory (NEI) for each county in each CBSA. The resulting product shall be divided by one million, providing a PWEI value, the units of which are million persons-tons per year. For any CBSA with a calculated PWEI value equal to or greater than 1,000,000, a minimum of three SO₂ monitors are required within that CBSA. For any CBSA with a calculated PWEI value equal to or greater than 100,000, but less than 1,000,000, a minimum of two SO₂ monitors are required within that CBSA and for any CBSA with a calculated PWEI value

equal to or greater than 5,000, but less than 100,000, a minimum of one SO₂ monitor is required within that CBSA.

TABLE 7. PWEI Calculation and Minimum Required SO₂

CBSA	Population Estimate ¹	NEI SO ₂ Emissions ²	PWEI Value	Minimum Required SO ₂
31080	13,214,799	3,676.50	48,584	1
40140	4,650,631	1,382.00	6,427	1

¹ 2019 Census estimate available for download at <https://www.census.gov/data/datasets/time-series/demo/popest/2010s-total-metro-and-micro-statistical-areas.html>

² 2017 NEI Data most recent available at <https://www.epa.gov/air-emissions-inventories/national-emissions-inventory>

South Coast AQMD exceeds the minimum monitoring requirement for SO₂ monitors; the Federal standard has not been exceeded for nearly 36 years.

PARTICULATE LEAD

Total Suspended Particulate (TSP) Pb measurements are collected at 11 sites as part of the particulate network; 4 of the sites are Source Impact for Pb, 2 are NCore and the remaining 5 sites measure ambient Pb. Minimum monitoring and collocation requirements are shown in Tables 8, 20, 21, 22 and 24. The spatial distribution of these sites is shown in Figure 6 in Appendix A.

U.S. EPA regulation requires local agencies to conduct ambient air Pb monitoring near Pb sources which are expected to or have been shown to contribute to a maximum Pb concentration in ambient air in excess of the NAAQS, taking into account the logistics and potential for population exposure. At a minimum, there must be one source-oriented SLAMS site located to measure the maximum Pb concentration in ambient air resulting from each non-airport Pb source which emits 0.50 or more tons per year and from each airport which emits 1.0 or more tons per year based the most recent NEI or other scientifically justifiable methods and data (such as improved emissions factors or site-specific data). The most recent data from the NEI (<https://www.epa.gov/air-emissions-inventories/national-emissions-inventory>) shows there were no non-airport Pb sources that emit 0.50 or more tons per year (tpy) and no airports that exceeded the 1.0 tpy threshold requiring a monitoring plan.

Although no source Pb monitoring is required based on emission estimates, South Coast AQMD operates source Pb sites surrounding the Exide (Vernon), Quemetco (Industry) and the Trojan Battery facilities. Existing urban Pb monitoring include Compton, LAX Hastings, Pico Rivera, San Bernardino and Long Beach (South). Los Angeles (Main St.) and Rubidoux are designated NCore Pb sites, however, U.S. EPA proposed removing the requirement for Pb monitoring at NCore sites (79 FR 54395, September 11, 2014) and action may be taken to request these monitors be removed in consultation with U.S. EPA. The Van Nuys Airport Pb monitor was granted a retroactive waiver by U.S. EPA during 2017. South Coast AQMD continues to meet or exceed the minimum monitoring requirements for Pb. At the end of 2019, South Coast AQMD is not in violation of the Pb NAAQS.

TABLE 8. Manual Pb FRM Monitor Sampling Frequency

	Location	AQS No.	Type	Required Sampling Frequency
1	ATSF (Exide)	060371406	Source	1-in-6
2	Closet World (Quemetco)	060371404	Source	1-in-6
3A	Compton “A”	060371302	Area Wide	1-in-6
3B	Compton “B” ²	060371302	Area Wide	1-in-6
4	LAX Hastings	060375005	Area Wide	1-in-6
5	Long Beach (South)	060374004	Area Wide	1-in-6
6A	Los Angeles (Main St.) ¹	060371103	NCore	1-in-6
6B	Los Angeles (Main St.) ^{1, 2}	060371103	NCore	1-in-6
7	Pico Rivera #2	060371602	Area Wide	1-in-6
8	Rehrig (Exide)	060371405	Source	1-in-6
9	Rubidoux ¹	060658001	NCore	1-in-6
10	San Bernardino	060719004	Area Wide	1-in-6
11	Uddeholm (Trojan Battery)	060371403	Source	1-in-6

¹ U.S. EPA proposed removing the requirement for Pb monitoring at NCore sites (79 FR 54395, September 11, 2014).

² Run as collocated on 1-in-6 run day.

Note: Sampling frequency requirement per 58.12 (b)

Photochemical Assessment Monitoring Stations (PAMS)

The South Coast AQMD Enhanced Monitoring Plan (EMP) for PAMS measurements, in accordance with 40 CFR 58 Appendix D paragraph 5(a) was submitted to the RA on July 1, 2018.

State air monitoring agencies were required to begin EMP PAMS measurements at their NCore location(s) by June 1, 2019. The equipment needed to measure PAMS parameters were to be purchased by U.S. EPA using a nationally negotiated contract and delivered to the monitoring agencies. U.S. EPA announced that due to contract delays, the necessary equipment would not be delivered in time to begin making PAMS measurements by June 1, 2019 and has extended the start date to June 1, 2021. South Coast AQMD may not begin making PAMS measurements at the Los Angeles (Main St.) and Rubidoux NCore locations during the 2020 intensive season and will work with U.S. EPA to begin measurements on or before the final revised start date.

The plan submitted to U.S. EPA is attached as Appendix D and includes PAMS site locations, types of instruments and frequency of measurements. South Coast AQMD utilizes PAMS data for trends analysis, trajectory modeling and source emissions inventory reconciliation. The PAMS network monitoring objectives and requirements are summarized in Table 9, Table 23 and Figure 7 in Appendix A which show the distribution of the PAMS network.

TABLE 9. PAMS Network

Date Established as PAMS	Site / AQS ID#	June 1 to August 31		Comments
		VOC	Carbonyl	
06/01/2009	Los Angeles (Main St)	Auto GC hourly averages	3 x 8-hr. sample every 3rd day	Direct Measure NO ₂ , Barometric Pressure, UV Radiation, Solar Radiation, Precipitation and Upper Air Measurements are conducted year round.
06/09/2009	Rubidoux	Auto GC hourly averages	3 x 8-hr. sample every 3rd day	Direct Measure NO ₂ , Barometric Pressure, UV Radiation, Solar Radiation, Precipitation and Upper Air Measurements are conducted year round.

PM_{2.5}

South Coast AQMD operates a total of 19 FRM sites which exceeds the minimum number of required FRM PM_{2.5} SLAMS sites per 40 CFR 58 Appendix D and shown in Tables 10, 11 and 13. These sites are located at NCore as well as Non-NCore SLAMS sites and designed to complement each other; both types are used to meet the minimum PM_{2.5} network requirements.

FRM 2.5 SLAMS monitoring sites are selected to represent area-wide air quality and include monitors collocated with NCore/PAMS sites. The majority of monitoring sites are neighborhood scale, however, some micro scale PM_{2.5} monitoring sites are considered to represent area-wide air quality including the Long Beach Route 710 and Ontario Route 60 near road sites.

The Compton and Mira Loma (Van Buren) sites are designated daily design value (DV) sites as shown in Table 13. Minimum sampling frequencies are shown in Table 11. Monitors exceed the minimum NCore 1-in-3 requirements at the Rubidoux and Los Angeles (Main St.) sites. The remaining sites meet or exceed the 1-in-3 schedule with the exception of Big Bear which has a pending waiver for reduction to a 1-in-6 sampling schedule. Big Bear is expected to be a Federal Equivalent Method (FEM) site in 2021. The Federal minimum monitoring requirements for PM_{2.5} are being met and/or exceeded by the South Coast AQMD PM_{2.5} monitoring network.

Collocated FRM PM_{2.5} sites include Los Angeles (Main St.), Mira Loma (Van Buren), Pico Rivera and Rubidoux. 40 CFR § 58 Appendix A 3.2.3.4 (b) requires fifty percent of the collocated quality control monitors to be deployed at sites with annual average or daily concentrations estimated to be within plus or minus 20 percent of either the annual or 24-hour NAAQS and the remainder at the PQAOs discretion. Of the collocated sites, Los Angeles (Main St.), Mira Loma (Van Buren), Rubidoux and Pico Rivera are all within 20 percent of the 24-hour or annual average NAAQS as required. Supporting data is shown in Table 11 and Figure 9, 2019 Air Quality Data Table. The latest data can be found at: (<http://www.aqmd.gov/home/air-quality/air-quality-data-studies/historical-data-by-year>).

Continuous PM_{2.5} monitors are required at 2 sites in each Metropolitan Statistical Area (MSA) as defined in 40 CFR 58 Appendix D and shown in Table 14. FEM continuous analyzers are largely collocated with daily FRM monitors. South Coast AQMD conducted a PM_{2.5} Continuous Monitor Comparability Assessment in accordance with the PM NAAQS rule published on January 15, 2013 (78 FR 3086) for the period 2017-2019. Specific to the provisions detailed in § 58.10 (b)(13) and § 58.11 (e). The assessment results, shown in Appendix C, indicate the Los Angeles (Main St.), Long Beach Route 710 Near Road and Mira Loma (Van Buren) PM_{2.5} continuous monitors do not meet the criteria to be compared against the NAAQS. South Coast AQMD requests a waiver to exclude PM_{2.5} continuous monitor data from NAAQS comparison for 2019. A waiver for has been granted by U.S. EPA for exclusion of Los Angeles (Main St.), Long Beach Route 710 Near Road, Mira Loma (Van Buren) and Ontario Route 60 Near Road 2018 PM_{2.5} continuous monitor data as shown in Appendix E. Meanwhile, South Coast AQMD is continuing comparison studies of newer technology to determine their ability to meet the criteria to be compared against the NAAQS.

Where both 24-hour FRM PM_{2.5} samplers and FEM PM_{2.5} continuous analyzers are deployed together, they are sited as collocated for data comparison purposes. The FRM PM_{2.5} sampler remains the primary analyzer used for attainment purposes and continuous analyzers are designated as audit samplers unless the primary 24-hour FRM PM_{2.5} is offline then continuous FEM analyzer data can be substituted if the FEM analyzer meets the acceptance criteria under 78 FR 3086.

Coarse particulate matter measurements (PM_{10-2.5}) were required at NCore sites until the revision to 40 CFR Part 58 on March 28, 2016. South Coast AQMD continues to measure this optional parameter by utilizing the continuous BAM monitors at the Los Angeles (Main St.) and Rubidoux air monitoring sites. These monitors are shown in Table 4.

Numerous sites within the South Coast AQMD FRM PM_{2.5} network are in areas where PM_{2.5} levels are higher than the NAAQS. Therefore, multiple sites are listed as population exposure and high concentration. If a PM_{2.5} network modification were to be implemented for a site that was in exceedance of the PM_{2.5} NAAQS levels, South Coast AQMD would notify U.S. EPA Region IX via written communication. Public notice of network modifications occurs as part of the annual network plan process which is stated in the annual network plan as required in 40 CFR § 58.10 (c). All sites in the Network using FRM samplers are suitable for comparison against the annual PM_{2.5} NAAQS.

PM_{2.5} speciation sampling is also a part of the South Coast AQMD PM_{2.5} program. Chemical speciation monitors are located at Los Angeles (Main St.) and Rubidoux as part of U.S. EPA PM_{2.5} Chemical Speciation Network (CSN). These sites were selected and approved with the concurrence of the RA. The PM_{2.5} CSN sites include analysis for elements, selected anions, cations and carbon by a U.S. EPA contracted laboratory. Additional PM_{2.5} Chemical speciation is conducted at Los Angeles (Main St.), Rubidoux, Anaheim and Fontana as part of the South Coast AQMD monitoring network. These monitors are separate from CSN and samples are analyzed at the South Coast AQMD

laboratory. Speciated data is used to develop implementation plans and support atmospheric/health effects related studies.

TABLE 10. Manual PM_{2.5} FRM Monitoring Stations Assigned Site Numbers

	Location	Site Code	ARB No.	AQS No.	Start Date
1	Anaheim	ANAH	30178	060590007	01/03/99
2	Azusa (composite)	AZUS	70060	060370002	01/04/99
3	Big Bear	BGBR	36001	060718001	02/08/99
4	Compton	COMP	70112	060371302	11/08
5	Fontana	FONT	36197	060712002	01/03/99
6	Indio	INDI	33157	060652002	01/30/99
7	Long Beach (North) ¹	LGBH	70072	060374002	01/03/99
8	Long Beach Route 710 Near Road	W710	70032	060374008	01/01/15
9	Long Beach (South)	SLGB	70110	060374004	06/20/03
10A	Los Angeles (Main St.) “A”	CELA	70087	060371103	01/03/99
10B	Los Angeles (Main St.) “B” ²	CELA	70087	060371103	01/06/99
11A	Mira Loma (Van Buren) “A”	MLVB	33165	060658005	11/09/05
11B	Mira Loma (Van Buren) “B” ²	MLVB	33165	060658005	03/08/12
12	Mission Viejo	MSVJ	30002	060592022	06/15/99
13	Ontario Route 60 Near Road	60NR	36036	060710027	01/01/15
14	Palm Springs	PLSP	33137	060655001	12/26/99
15	Pasadena	PASA	70088	060372005	03/04/99
16A	Pico Rivera #2 (composite)	PICO	70185	060371602	09/12/05
16C	Pico Rivera #2 ²	PICO	70185	060371602	09/12/05
17	Reseda	RESE	70074	060371201	01/24/99
18A	Rubidoux “A”	RIVR	33144	060658001	01/03/99
18B	Rubidoux “B” ²	RIVR	33144	060658001	01/03/99
19	San Bernardino	SNBO	36203	060719004	01/03/99

¹Although the Long Beach (North) station has been closed, FRM PM_{2.5} measurements continued at the location until a suitable replacement site can be implemented.

²FRM run as collocated on 1-in-6 run day.

TABLE 11. Manual PM_{2.5} FRM Monitor Sampling Frequency

	Location	AQS No.	24-hour Design Value	33-37ug/m ³	Annual Design Value	< 12 ug/m ³	Required Frequency ¹	Current Frequency
1	Anaheim	060590007	31	No	10.8	Yes	1-in-3	Daily
2	Azusa (composite)	060370002	25	No	10.3	Yes	1-in-3	1-in-3
3	Big Bear ⁵	060718001	24	No	6.2	Yes	1-in-3	1-in-6
4	Compton	060371302	38	No	12.5	No	1-in-3	Daily
5	Fontana	060712002	30	No	11.5	Yes	1-in-3	1-in-3
6	Indio	060652002	15	No	7.9	Yes	1-in-3	1-in-3
7	Long Beach (North) ²	060374002	29	No	10.5	Yes	1-in-3	Daily
8	Long Beach Route 710 Near Road	060374008	33	Yes	12.4	No	1-in-3	Daily
9	Long Beach (South)	060374004	29	No	10.6	Yes	1-in-3	Daily
10A	Los Angeles (Main St.) “A”	060371103	31	No	11.9	Yes	1-in-3	Daily
10B	Los Angeles (Main St.) “B” ³	060371103	N/A	Collocated			1-in-6	1-in-6
11A	Mira Loma (Van Buren) “A”	060658005	37	Yes	13.5	No	1-in-3	Daily
11B	Mira Loma (Van Buren) “B” ³	060658005	N/A	Collocated			1-in-6	1-in-6
12	Mission Viejo	060592022	17	No	7.9	Yes	1-in-3	1-in-3
13	Ontario Route 60 Near Road	060710027	34	Yes	14.0	No	1-in-3	Daily
14	Palm Springs	060655001	13	No	6.0	Yes	1-in-3	1-in-3
15	Pasadena “A”	060372005	25	No	9.7	Yes	1-in-3	1-in-3
16A	Pico Rivera #2 (composite)	060371602	31	No	11.9	Yes	1-in-3	1-in-3
16C	Pico Rivera #2 “C” ⁴	060371602	N/A	Collocated			1-in-6	1-in-6
17	Reseda	060371201	24	No	9.8	Yes	1-in-3	1-in-3
18A	Rubidoux “A”	060658001	31	No	12.0	No	1-in-3	Daily
18B	Rubidoux “B” ³	060658001	N/A	Collocated			1-in-6	1-in-6
19	San Bernardino	060719004	28	No	11.0	Yes	1-in-3	1-in-3

¹ Required SLAMS stations whose measurements determine the 24-hour design value for their area and whose data are within ± 5 percent of the level of the 24-hour PM_{2.5} NAAQS must have an FRM or FEM operate on a daily schedule if that area's design value for the annual NAAQS is less than the level of the annual PM_{2.5} standard. Changes in sampling frequency attributable to changes in design values shall be implemented no later than January 1 of the calendar year following the certification of such data as described in §58.15.

² Although the Long Beach (North) station has been closed, FRM PM_{2.5} measurements continue at the location until a suitable replacement site can be implemented.

³ Partisol 2025i run as collocated on 1-in-6 run day.

⁴ Partisol 2000i run as collocated on 1-in-6 run day.

⁵ 1-in-6 waiver with U.S. EPA.

National Air Toxics Trends Station (NATTS)

The NATTS program was developed to fulfill the need for long-term Hazardous Air Pollutant (HAP) monitoring data of consistent quality nationwide and is considered part of the larger Urban Air Toxics Monitoring Program (UATMP). The program has allowed for the identification of compounds that are prevalent in ambient air and for participating agencies to screen air samples for concentrations of air toxics that could potentially result in adverse human health effects. South Coast AQMD has conducted several air toxics measurement campaigns in the past, which demonstrated the variety and spatial distribution of air toxics sources across the Basin. A single air toxics measurement site cannot reflect the levels and trends of air toxics throughout the Basin. For this reason, two NATTS sites are used to characterize the Basin's air toxics levels. The first site is a central urban core site in Los Angeles that reflects concentrations and trends due primarily to urban mobile source emissions. A second, more rural, inland site in Rubidoux captures the transport of pollutants from a variety of upwind mobile and industrial sources in the most populated areas of the air basin. NATTS monitoring began in February 2007 and continues at the Los Angeles (Main St.) and Rubidoux air monitoring sites. During April 2016, a system audit was conducted by U.S. EPA, which assessed the South Coast AQMD NATTS program. The audit found no major issues with the operation of the network.

NCore

NCore monitoring rules required that South Coast AQMD make NCore sites operational by January 1, 2011. To meet this goal, South Coast AQMD installed trace level analyzers for CO, NOY and SO₂ at the Rubidoux and Los Angeles (Main St.) sites. Continuous PM₁₀ and PM_{2.5} BAMs are utilized for PM₁₀-PM_{2.5} measurements at both sites. Both the Los Angeles (Main St.) and Rubidoux sites are NATTS and PAMS monitoring locations.

Special Programs

Special monitoring programs are conducted for rule compliance purposes, to characterize the levels of toxic air contaminants and other criteria pollutants in sub-regional areas or communities in the Basin, or to support modeling and planning efforts. The following is a list of special monitoring programs that were active during the past year. Note that this is being provided for informational purposes only and not part of the criteria pollutant network.

Multiple Air Toxics Exposure Study (MATES)

The Basin is a highly urbanized area home to about seventeen million people who own and operate about eleven million motor vehicles and contains some of the highest concentrations of industrial and commercial operations in the country. In 1986, South Coast AQMD conducted the first MATES study to determine the Basin-wide risks associated with major airborne carcinogens. At the time, the state of technology was such that only ten known air toxic compounds could be analyzed. In 1998, a second MATES study (MATES II) was conducted; MATES II included a monitoring program of 40 known air toxic compounds, an updated emissions inventory of toxic air contaminants and a modeling effort to characterize health risks from hazardous air pollutants. In April 2004, the South Coast AQMD conducted the third MATES study (MATES III) to assess the ambient levels of airborne compounds linked to adverse health effects in humans. And in June 2012, South Coast AQMD began

the fourth MATES study (MATES IV) which concluded in June 2013. A final report was released May 1, 2015.

The fifth MATES study (MATES V) includes a fixed site monitoring program with ten stations, an updated emissions inventory of toxic air contaminants and a modeling effort to characterize risk across the basin. The study focuses on the carcinogenic risk from exposure to air toxics but does not estimate mortality or other health effects from particulate exposures.

The purpose of the MATES V fixed site monitoring is to characterize long-term regional air toxics levels in residential and commercial areas. To complement and enhance the fixed site monitoring, MATES V efforts include: advanced state-of-the-art monitoring technologies, low-cost sensor networks and near real-time data and community engagement to conduct enhanced air toxics monitoring at local scales with a focus on Environmental Justice (EJ) communities, especially those near refineries. The motivation behind the enhanced monitoring efforts is to better characterize air toxics levels in highly impacted areas and provide higher resolution air quality data to better understand emissions from petroleum refineries and warehouses. The data is essential to implement control measures to reduce toxic air pollution in these communities. The most recent program updates can be found at: <http://www.aqmd.gov/home/air-quality/air-quality-studies/health-studies/mates-v>

Assembly Bill 617 Community Air Initiatives (AB 617)

Assembly Member Cristina Garcia authored AB 617 to address the disproportionate impacts of air pollution in EJ communities. The measure requires local air districts to take specific actions to reduce air pollution and toxic air contaminants from commercial and industrial sources.

Previously passed bills provide significant new funding and resources to expand South Coast AQMD's community-based programs to reduce air pollution and protect public health, with a focus on EJ communities.

The primary purpose of these new efforts is to implement AB 617. South Coast AQMD will conduct extensive outreach to residents and other stakeholders to describe the program and seek input on how to implement it. The most recent program updates can be found at: <http://www.aqmd.gov/nav/about/initiatives/environmental-justice/ab617-134>.

Rule 1180 Refinery Fenceline Air Monitoring

Adopted in December 2017, Rule 1180 mandates the implementation of real-time observations of air quality at or near the fenceline of all major refineries in the Basin and in nearby communities.

The main objectives of Rule 1180 are to:

- Provide real-time information about air pollutant levels at the refinery fenceline and in nearby communities.
- Understand long-term variations and trends of refinery related emissions.
- Help communities understand potential air quality impacts of refinery emissions.
- Provide a notification to the community if emissions exceed pre-determined thresholds.
- Enable refineries to quickly address significant changes in emissions.

The most recent program updates can be found at: <http://www.aqmd.gov/home/rules-compliance/rules/support-documents/rule-1180-refinery-fenceline-monitoring-plans>.

Salton Sea Monitoring

On Sunday, September 9, 2012, a strong thunderstorm over the Salton Sea caused odors to be released and transported to the northwest, across the Coachella Valley and through the Banning Pass into the Basin. The odors also crossed through the mountain passes west of the Salton Sea and into the Temecula Valley. The following day, South Coast AQMD received over 235 complaints of sulfur type odors.

As the Salton Sea recedes, the potential exists for more of these large-scale odor events to occur. South Coast AQMD installed and maintains PM10 and H2S air monitors in Mecca (Saul Martinez Elementary School) and H2S at the Imperial Irrigation District's Torrez-Martinez site. The two sites monitor the type of expected nuisance pollutants which are released from the Salton Sea. The primary objective of this monitoring network is to place monitoring resources at a lakeside location where peak hydrogen sulfide concentrations are expected to occur and in the nearby community. The monitoring sites provide data that can be used to assess population exposures in case of odor events and for comparison to the state standard for hydrogen sulfide. The Mecca site has become part of the permanent ambient air monitoring network.

As the Salton Sea is projected to recede, these sites will be further enhanced for monitoring the predicted particulate matter (PM) emissions from the Salton Sea area that may influence the Coachella Valley and Basin PM levels. Large-scale odor events are announced as advisories at the following location: <http://www.aqmd.gov/home/air-quality/air-quality-advisories> or at <https://saltonseaodor.org/>

Recent or Proposed Modifications to Network

Waiver Requests

South Coast AQMD has pending waivers with U.S. EPA Region IX representatives to request retroactive waivers for sites which have closed as a result of unexpected lease terminations and circumstances beyond control of South Coast AQMD. These sites include: Riverside Magnolia, Ontario, Burbank, Long Beach (North) and Long Beach (Hudson)

AMS. The Big Bear Lake AMS also has a waiver pending for a reduction in sampling frequency from 1-in-3 days to a 1-in-6 day sampling schedule.

Additionally, South Coast AQMD and U.S. EPA Region IX are working collaboratively to identify low value criteria pollutant monitors over the required minimum number of monitors. Once identified, waivers and supporting documentation will be submitted to U.S. EPA Region IX for final approval before removal of the monitors. Waivers approved during 2019 are included in Appendix E.

FRM PM2.5 Replacement

South Coast AQMD began purchasing FRM PM2.5 Partisol Manual Reference Method: RFPS-0498-118 and Manual Reference Method: RFPS-0498-117 to replace Anderson RAAS monitors Manual Reference Method: RFPS-0598-120 which have been a part of the PM2.5 network since the inception of the program. As of July 1, 2020, all remaining Anderson RAAS have been replaced with Partisol PM2.5 2025i or 2000i monitors. As a result of the deployment, method codes and collocations have been updated in the site reports to reflect changes necessary to meet U.S. EPA requirements.

Continuous PM2.5 Testing at Indio, Palm Springs, Big Bear Lake and Mission Viejo

South Coast AQMD is testing continuous FEM PM2.5 at Indio, Palm Springs, Big Bear and Mission Viejo. This intermittent testing will continue during 2020-2021 as the manufacturers continue to make improvements to these monitors. Comparison studies of newer technology include Met One Instruments, Inc. BAM-1022 Real Time Beta Attenuation Mass Monitor EQPM-1013-209 and Thermo Fisher Scientific 5014i EQPM-1102-150. Comparisons are being conducted to determine the instrument ability to meet the criteria for NAAQS comparison, durability and accuracy of the instruments. If the comparisons meet the Continuous Monitor Comparability Assessment criteria, South Coast AQMD will apply for a waiver to reduce or remove manual FRM PM2.5 sampling from the air monitoring sites.

Anaheim Relocation

The Anaheim site has been in continuous operation since August 2001. Since that time the area surrounding the site has changed significantly, potentially compromising data. The area immediately surrounding the site is designated as a loading/unloading zone for elementary school kids, creating a safety issue. South Coast AQMD has been approached by Anaheim Elementary School District to relocate to a nearby school to better meet the needs of the school district and South Coast AQMD. Potential sites are under evaluation and any relocation of the current site will be done in consultation with U.S. EPA.

Upland Relocation

The Upland site has been in continuous operation since March 1973 and is one of South Coast AQMD's oldest continuous sites. Since that time the area surrounding the site has changed significantly, potentially compromising data. The site is located in a trailer park and facility managers have approached South Coast AQMD indicating the site no longer is consistent with the facility. South Coast AQMD has been working with the Metropolitan Water District to locate a suitable replacement site. Considering the site is important in the

measurement of O₃, a site closer to the foothills may more accurately represent transportation of O₃ along the San Gabriel foothills. Potential sites are under evaluation and any relocation of the current site will be done in consultation with U.S. EPA.

Long Beach (Hudson) Relocation

The Long Beach (Hudson) site has been in continuous operation since January 2010. The site was originally located to measure the impact of the Port of LA emissions on the surrounding community. Since the time of inception, the area surrounding the site has changed potentially compromising data. Heavy Duty (HD) vehicle traffic, loading/unloading zone for elementary school kids and a nearby pipeline may compromise data. South Coast AQMD is seeking approval through the established U.S. EPA waiver process for relocation of criteria pollutants to a newly established site in Signal Hill. A waiver for relocation of the monitors to Signal Hill has been submitted and is pending approval. The Long Beach (Hudson) site will continue to measure toxics as part of the AB 617 monitoring program.

Long Beach Consolidation

The Long Beach (North) site was closed in September 2013 due to logistical problems beyond South Coast AQMD's control. The Long Beach (South) site was originally located to measure the impact of the Port of LA particulates on the surrounding community. Since the time of inception, the area surrounding the site has changed potentially compromising data. South Coast AQMD is seeking approval through the established U.S. EPA waiver process for relocation of criteria pollutants to a newly established site in Signal Hill. A waiver for relocation of the monitors to Signal Hill has been submitted and is pending approval.

Signal Hill AMS

The Signal Hill AMS was added as part of the criteria pollutant air monitoring network beginning January 1, 2020. The site was added to provide enhanced coverage in the Long Beach metropolitan area and will measure O₃ and NO₂. A waiver request to relocate additional monitors from the Long Beach (North) and Long Beach (Hudson) AMSs to Signal Hill has been submitted to U.S. EPA and pending approval.

North Hollywood AMS

The North Hollywood AMS was added as part of the criteria pollutant air monitoring network beginning January 1, 2020. The site was added to provide enhanced coverage in the Burbank area and will measure O₃, NO₂ and continuous PM_{2.5}. A waiver request to relocate additional monitors from the Burbank AMS to North Hollywood has been submitted to U.S. EPA and pending approval.

Minimum Monitoring Requirements

The South Coast AQMD jurisdictional boundary encompasses two MSAs and two CBSAs whose boundaries and codes mirror those of the MSAs as defined by the U.S. Office of Management and Budget. Los Angeles-Long Beach-Anaheim MSA\CBSA (Code 31080) has an estimated population of 13,214,799 and the Riverside-San Bernardino-Ontario MSA\CBSA (Code 40140) has an estimated population of 4,650,631 according to U.S. Census estimates for 2019. The minimum number of monitors for each pollutant is based on MSA population as described in 40 CFR § 58 Appendix D. The South Coast AQMD is a PQAQO and the network exceeds the minimum monitoring requirements for all criteria pollutants. Details are provided below.

Table 12 Minimum Monitoring Requirements for O₃.

(Note: Refer to section 4.1 and Table D-2 of Appendix D of 40 CFR Part 58.)

MSA	Counties	Population & Census Year	8-hr DV (ppb) & Years ¹	DV Site (name, AQS ID)	Monitors Required	Monitors Active	Monitors Needed
31080	Los Angeles Orange	13,214,799 2019	103 2017-2019	Glendora 060370016	4	14	0
40140	San Bernardino Riverside	4,650,631 2019	108 2017-2019	Redlands 060714003	3	15	0

¹DV Years – The three years over which the design value was calculated.

Monitors required for SIP or Maintenance Plan: 29

Table 13 Minimum Monitoring Requirements for PM_{2.5} SLAMS (FRM)

(Note: Refer to sections 4.71, 4.72 and Table D-5 of Appendix D of 40 CFR Part 58.)

MSA	Counties	Population & Census Year	Annual DV [ug/m ³] & Years ¹	Annual DV Site (name, AQS ID)	Daily DV [ug/m ³] & Years	Daily DV Site (name, AQS ID)	Required SLAMS Monitors	Active SLAMS Monitors	Additional SLAMS needed
31080	Los Angeles Orange	13,214,799 2019	12.5 2017-2019	Compton 060371302	38.0 2017-2019	Compton 060371302	3	10	0
40140	San Bernardino Riverside	4,650,631 2019	14.0 2017-2019	Ontario Route 60 Near Road 060710027	37.0 2017-2019	Mira Loma (Van Buren) 060658005	3	9	0

¹DV Years – The three years over which the design value was calculated.

Monitors required for SIP or Maintenance Plan: 19

Table 14 Minimum Monitoring Requirements for Continuous PM_{2.5} Monitors (FEM and Non-FEM)

(FEM/ARM and non-FEM see 40 CFR 58 Appendix D Section 4.72.)

MSA	Counties	Population & Census Year	Annual DV [ug/m3] & Years ¹	Annual DV Site (name, AQS ID)	Daily DV [ug/m3] & Years	Daily DV Site (name, AQS ID)	Required Continuous Monitors	Active Continuous Monitors	Additional Continuous needed
31080	Los Angeles Orange	13,214,799 2019	12.5 ² 2017-2019	Compton 060371302	38.0 ² 2017-2019	Compton 060371302	2	5-FEM 3-Non FEM	0
40140	San Bernardino Riverside	4,650,631 2019	14.0 ² 2017-2019	Ontario Route 60 Near Road 060710027	37.0 ² 2017-2019	Mira Loma (Van Buren) 060658005	2	3-FEM 5-Non FEM	0

¹DV Years – The three years over which the design value was calculated.

²FRM DV has been substituted since continuous monitors do not meet 78 FR 3086.

Monitors required for SIP or Maintenance Plan: 15

Table 15 Minimum Monitoring Requirements for Speciated PM_{2.5} Monitors

(Note: Refer to sections 4.74 of Appendix D of 40 CFR Part 58.)

MSA	Counties	Population & Census Year	Monitors Required ¹	Monitors Active	Monitors Needed
31080	Los Angeles Orange	13,214,799 2019	1	2	0
40140	San Bernardino Riverside	4,650,631 2019	1	2	0

¹Sites designated as part of the PM_{2.5} CSN.

Monitors required for SIP or Maintenance Plan: 4

Table 16 Minimum Monitoring Requirements for PM10

(Note: Refer to section 4.6 and Table D-4 of Appendix D of 40 CFR Part 58.)

MSA	Counties	Population & Census Year	2019 Max Concentration [ug/m3]	Max Concentration Site (name, AQS ID)	Required Monitors	Active Monitors	Additional Monitors Needed
31080	Los Angeles Orange	13,214,799 2019	155 ^{1, 2}	Long Beach (Hudson) 060374006	4-8 Med. Conc.	8	0
40140	San Bernardino Riverside	4,650,631 2019	282 ¹	Mira Loma (Van Buren) 060658005	6-10 High Conc.	11	0

Monitors required for SIP or Maintenance Plan: 19

¹First max 24-hour concentration.

²high wind event on 4/9/19.

Table 17 Minimum Monitoring Requirements for NO2

(Note: Refer to section 4.3 of Appendix D of 40 CFR Part 58.)

CBSA	Population & Census Year	Max AADT Counts (2018) ¹	Required Near Road Monitors ²	Active Near Road Monitors	Additional Near Road Monitors Needed	Required Area Wide Monitors	Active Area Wide Monitors	Additional Area wide Monitors Needed
31080	13,214,799 2019	377,600 2018	2	2	0	2	15	0
40140	4,650,631 2019	278,000 2018	2	2	0	2	8	0

¹Max AADT Counts – 2018 latest data available from CA DOT

²Four required began January 1, 2014-15.

Monitors required for SIP or Maintenance Plan: 19 (area wide), 4 (near road)

Monitors Required for PAMS: 2

U.S. EPA Regional Administrator-required monitors per 40 CFR 58, Appendix D 4.3.4: 2

Table 18 Minimum Monitoring Requirements for SO₂

(Note: Refer to section 4.4 of Appendix D of 40 CFR Part 58.)

CBSA	Counties	Total SO ₂ ¹ [tons/year]	Population Weighted Emissions Index ² [million persons-tons per year]	Active Near Road Monitors	Required Area Wide Monitors	Active Area Wide Monitors	Additional Area wide Monitors Needed
31080	Los Angeles Orange	3676.5 2017	48,584	0	1	2	0
40140	San Bernardino Riverside	1382.0 2017	6,427	0	1	2	0

¹Using latest NEI data 2017, available on U.S. EPA website <https://www.epa.gov/air-emissions-inventories/national-emissions-inventory>

²Calculated by multiplying CBSA population and total SO₂ and dividing product by one million.

Monitors required for SIP or Maintenance Plan: 4

U.S. EPA Regional Administrator-required monitors per 40 CFR 58, Appendix D 4.4.3: 0

Table 19 Minimum Monitoring Requirements for CO

(Note: Refer to section 4.2 of Appendix D of 40 CFR Part 58.)

CBSA	Population & Census Year	Required Near Road Monitors ¹	Active Near Road Monitors ²	Required Area Wide Monitors	Active Area Wide Monitors
31080	13,214,799 2019	1	1	0	14
40140	4,650,631 2019	1	1	0	7

¹Began January 1, 2015

²Required sites active by January 1, 2015; were collocated with near road NO₂ sites.

Monitors required for SIP or Maintenance Plan: 21 (area wide), 2 (near road)

U.S. EPA Regional Administrator-required monitors per 40 CFR 58, Appendix D 4.4.2: 0

Table 20 Minimum Monitoring Requirements for Pb at NCore

(Note: Refer to section 4.5 of Appendix D of 40 CFR Part 58.)

NCore Site (name, AQS ID)	CBSA	Population & Census Year	Required Monitors ¹	Active Monitors	Additional Monitors Needed
Los Angeles (Main St.) 060371103	30180	13,214,799 2019	0	2 ²	0
Rubidoux 060658001	40140	4,650,631 2019	0	1	0

¹– Requirement rescinded per 79 FR 54395, September 11, 2014.

²– Collocated Monitor.

Table 21 Source Oriented Pb Monitoring

(Note: Refer to section 4.5 of Appendix D of 40 CFR Part 58.)

Source Name	Address	Pb Emissions (lbs. per year)	Emission Inventory Source ² & Data Year	Max 3-Month DV ¹ [ug/m3]	DV Date (third month, year)
Exide Technologies ³	4010 E. 26th Street Vernon, CA 90058	9.5	AER 2019	0.02	3;2019
Trojan Battery	9440 Ann Street Santa Fe Springs, CA 90670	10.1	AER 2019	0.09	9; 2017
Quemetco Inc.	720 S 7th Avenue City of Industry, CA 91746	6.4	AER 2019	0.01	1; 2019
Exide Technologies ^{3, 4}	Railroad Yard – Washington Blvd.	9.5	AER 2019	0.01	1; 2019

¹Consider data from past three years.

²Using latest South Coast AQMD AER data 2019.

³Exide facility is current closed.

⁴Exide facility is current closed, ATSF (Exide) monitoring site.

Monitors Required for SIP or Maintenance Plan: 0; U.S. EPA Regional Administrator required monitors per 40 CFR 58, Appendix D 4.5(C) c: 0

Table 22 Minimum Monitoring Requirements for Pb, Non-Source, Non-NCore Monitoring

(Note: Refer to section 4.5 of Appendix D of 40 CFR Part 58.)

CBSA	Population & Census Year	Annual DV [ug/m3] & Years ¹	Required Area Wide Monitors	Active Area Wide Monitors	Additional Monitors Needed
31080	13,214,799 2019	0.01, 2017-2019	0	4	0
40140	4,650,631 2019	0.01 2017-2019	0	1	0

¹DV Years – The three years over which the design value was calculated.

Table 23 Minimum Monitoring Requirements for PAMS

(Note: Refer to section 5.0 of Appendix D of 40 CFR Part 58.)

Area	Type	Required PAMS Sites	Active PAMS Sites	PAMS Sites Needed
South Coast AQMD Monitoring Area	NCore Collocated	0	2	0

Table 24 Collocated Manual PM2.5, PM10 and Non-NCore Pb Networks

(Note: Refer to section 3.2.5, 3.3.5, 3.3.1 and 3.3.4.3 of Appendix A, 40 CFR Part 58.)

Pollutant	Method Code	Primary Monitors	Required Collocated Monitors	Active Collocated Monitors
PM2.5 Partisol 2025	145	18	3	3
PM2.5 Partisol 2000	143	1	1	1
PM10 Hi Vol GMW 1200	063	14	2	2
PM10 Tisch TE 6001	141	5	1	1
Pb (TSP Hi-Vol)	110 (Non Source)	7	1	2
Pb (Tsp Hi-Vol)	110 (Source)	4	1	1

Table 25 Collocated Automated (continuous) PM2.5 Network

(Note: Refer to section 3.2.5 & 3.3.5 of Appendix A, 40 CFR Part 58.)

Method Code	Primary Monitors	Required Collocated Monitors	Active Collocated Monitors ¹
170	0	0	6
183	0	0	2

¹No FEM PM2.5 BAMs are listed as primary monitors; therefore, no collocation requirement exists. All FEM are collocated with FRM monitors.

Data Submittal and Archiving Requirements

As required in 40 CFR 58.16 (a), data is reported via AQS including all ambient air quality data and associated quality assurance data for SO₂, CO, O₃, NO₂, NO, NO_x, NR NO₂, NO, NCore NO_y, Pb-TSP mass concentration, Pb-PM₁₀ mass concentration, PM₁₀ mass concentration, PM_{2.5} mass concentration, filter-based PM_{2.5} FRM/FEM field blank mass, sampler-generated average daily temperature and sampler-generated average daily pressure, chemically speciated PM_{2.5} mass concentration data, PM_{10-2.5} mass concentration, meteorological data from NCore and PAMS sites, average daily temperature\average daily pressure for Pb sites and metadata records\information as specified by the AQS Data Coding Manual through December 31, 2019.

A data certification letter has been submitted to the RA certifying applicable data collected at all SLAMS. This includes all FRM, FEM, Approved Regional Method (ARM) and Special Purpose Monitors (SPM) that meet criteria in Appendix A, to part 58, for January 1 through December 31, 2019.